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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,381	02/05/2004	Shuichi Kohayashi	118575	3326
25944	7590	07/06/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			PATEL, ISHWARBHAI B	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/771,381	<b>Applicant(s)</b> KOHAYASHI ET AL.	
	<b>Examiner</b> Ishwar (I. B.) Patel	<b>Art Unit</b> 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-12 is/are pending in the application.
- 4a) Of the above claim(s) 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/16/06</u> | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This action is in response to the amendment filed on April 10, 2006.

#### ***Priority***

2. Though, copy of the PTO receipt for filing of papers submitted by the applicant indicate the submission of the priority documents, out of five priority documents, one document of application No. 2004-28470, filed on February 4, 2004, could not be located on the file with PTO. The applicant is requested to submit a copy for the record.

#### ***Oath/Declaration***

3. The substitute Declaration is still awaited. The Declaration was objected in the previous action.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakazu Osamu, (Japanese Patent No. JP0909763A) in view of Kimura (US Patent No. 5,786,304).

**Regarding claim 1**, Kakazu in the figure 1, discloses an oxide superconductor current lead in which metallic electrodes (2a, 2b) are provided at both sides of the oxide superconductor (1), joining metal (solder 4) is provided at joint portions formed by said superconductor and said metallic electrodes, and said oxide superconductor and said metallic electrodes are joined by the joining metal (4).

Kakazu does not explicitly disclose the oxide superconductor is a rare-earth based oxide superconductor manufactured by a melting method and a volume of holes in the joining metal provided at the joint portions is 5% or less of a volumetric capacity of the joint portions.

However, rare earth based superconductor and solder containing silver used for joining the superconductor is old and known in the art. Maeda, in figure 1-3, discloses joining of a current lead made of rare earth oxide superconductor with a normal conductor made of silver with low resistance. Kimura discloses various embodiments of joining rare earth based superconductor with solder comprising silver. Therefore, it would have been obvious to a person of ordinary skill in the art to have the superconductor of Kakazu, made of rare earth based material, as taught by Maeda and Kimura, as is old and known in the art. Further, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

Regarding the volume of holes in the joining metal provided at the joint portions is 5% or less of a volumetric capacity of the joint portions. Kakazu further recites that the joint formed is with a low contact resistance. The holes formed by the entrapped gas at the joint will increase the resistance. Therefore, low contact resistance of Kakazu implies that there will be minimum amount of entrapment of the gas or no gas holes formed at all.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to construe the structure of Kakazu with a volume of holes in the joining metal at the joint portions 5% or less of a volumetric capacity of the joint portions, in order to have a good joint and low contact resistance.

Regarding the limitation "the oxide superconductor manufactured by a melting method", it is a process step in the product claim. Such a process limitation defines the claimed invention over the prior art to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is same as, or obvious over the prior art. See *Product-by-Process* in MPEP § 2113 and 2173.05(p) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964, 966 (Fed. Cir. 1985). Therefore, Kakazu meets the limitation. Therefore, the modified assembly of Kakazu meets the claimed limitations.

**Regarding claim 2**, the modified assembly of Kakazu further discloses silver coat (3) provided on a surface of said oxide superconductor joined by the joining metal.

**Regarding claim 3**, the modified assembly of Kakazu further discloses the joining metal is solder including Pb-Sn.

6. Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified assembly of Kakazu as applied to claim 1 above, and further in view of Sakuraba (US Patent No. 5,623,240).

**Regarding claim 7**, the modified assembly of Kakazu discloses an oxide superconductor current lead which is provided with metallic electrodes (2a, 2b) at both ends of a rare earth based oxide superconductor as applied to claim 1 above. The modified assembly of Kakazu does not explicitly disclose any system where the metallic conductors are connected to mating conductor to transfer a current.

However it is well known and routine in the art to use the current lead for transferring the current in a superconducting system. Sakuraba, in figure 1, discloses a magnet system with the current leads (106) transferring current.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to use the current lead of the modified assembly of Kakazu in the system of Sakuraba for transferring the current to facilitate the functioning of the system, thereby meeting limitation of transferring the current from and to the mating conductor.

**Regarding claim 8**, the modified assembly of Kakazu further discloses said oxide superconductor has a columnar shape, and is placed so that a longitudinal direction thereof is substantially in parallel with the interface (see figure 1 and 2).

**Regarding claims 9 and 10**, the modified assembly of Kakazu discloses all the features of the claimed invention as applied to claim 7 above, but does not explicitly disclose said oxide superconductor is an oxide superconductor produced by a melting method, as claimed in claim 9, said oxide superconductor is an oxide superconductor made by joining a plurality of oxide superconductors, as claimed in claim 10. However, how the superconductor is made is a process step in the product claim. Such a process limitation defines the claimed invention over the prior art to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is same as, or obvious over the prior art. See Product-by-Process in MPEP § 2113 and 2173.05(p) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964, 966 (Fed. Cir. 1985). Therefore, Kakazu meets the limitation.

**Regarding claim 11**, the modified assembly of Kakazu discloses all the features of the claimed invention including the joining metal, as applied to claim 7 above, but does not disclose a volume of holes in the joining metal constitutes 5% of a volumetric capacity of joint portions or less. However, Kakazu further recites that the joint with is a low contact resistance. The holes formed by the entrap gas at the joint will increase the

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resistance. Therefore, low contact resistance of Kakazu implies that there will be minimum amount of entrapment of the gas.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to have volume of holes in the joining metal at the joint portions 5% or less of a volumetric capacity of the joint portions, in order to have a good joint and low contact resistance.

**Regarding claim 12**, the modified assembly of Kakazu discloses all the features of the claimed invention as applied to claim 7 above including the lead current is a part of a superconducting system as applied to claim 7 above (part of the system of Sakuraba).

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-3 and 7-12 have been considered but are not persuasive / moot in view of the new ground(s) of rejection.

Applicant argues that Kakazu fails to consider holes formed in joint portion. However, as applied to the claim rejection, Kakazu recites the joint to with a low resistance. The low resistance implies that the joint efficient is good without any deficiency leading to increase in the resistance. Further, it would have been obvious to a person of ordinary skill in the art to consider the no holes / voids in the joint. Therefore, Kakazu meets the limitation.



Applicant further argues that Kakazu fails to provide any disclosure with regard to energizing current capacity. However, no such limitations are recited in the claims.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272 1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IP  
June 26, 2006

  
ISHWAR PATEL  
PRIMARY EXAMINER